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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/856,815	09/07/2001	Heiner Bayha	VMP-491-A	3470

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EXAMINER	
YAM, STEPHEN K	

ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 06/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/856,815	Applicant(s) BAYHA ET AL.	
	Examiner Stephen Yam	Art Unit 2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9 and 11-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9 and 11-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 23, 2004 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-6, 8, 9, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. US Patent No. 4,636,643 in view of Larson et al. US Patent No. 4,859,867.

Nakamura et al. teach a device for detecting particles on a windshield (2) of a motor vehicle with a radiation source (1) (see Fig. 1 and Fig. 2) which emits optical rays onto the windshield, a photodetector (5 or 9) which receives a portion of the rays emitted onto the windshield, and a single control unit (7, 10) (containing a first controller (7) and a second controller (10)) which manages the radiation source and analyzes the rays received by the photodetector, characterized in that the radiation source is positioned outside the field of vision of a driver of the vehicle (see Fig. 1) and is aligned in such a way that the light rays from the

radiation source strike the windshield in the area of the field of vision, and that the photodetector is pointed at the area of the windshield which the optical rays from the radiation source strike (see Fig. 1), and wherein the single control unit is operable to control the radiation source to emit a first ray (see Col. 3, lines 59-61) and is operable to analyze the first ray for purposes of detecting the presence of particles (fog is defined as " vapor condensed to fine *particles* of water" according to Merriam-Webster's Dictionary) on the windshield of the motor vehicle when at least a portion of the first ray is received by the photodetector (see Col. 3, line 62 to Col. 4, line 2 and Col. 4, lines 24-32). Regarding Claim 2, Nakamura et al. teach the radiation source formed as a light emitting diode (see Col. 3, line 30). Regarding Claims 3 and 4, Nakamura et al. teach the photodetector including several receiving units (5) and formed as optoelectronic arrays (see Col. 3, lines 63-65). Regarding Claims 5 and 6, Nakamura et al. teach a lens (see Col. 3, line 34-37) located in the direction of propagation of the beams reflected from the particles in front of the receiving units for focusing the beams. Regarding Claim 8, Nakamura et al. teach the radiation source emitting optical rays with a wavelength in the infrared range (see Col 3, lines 27-33). Regarding Claim 9, Nakamura et al. teach the control unit (7 and 10) managing the radiation source (see Col. 3, lines 59-61) in such a way that the type of particles can be determined from the rays received by the photodetector. Nakamura does not teach the single control unit selectively controlling at least one of an intensity, duration, and frequency of the first ray emitted by the radiation source and to perform the analysis based, at least in part, on the one of the previously controlled intensity, duration, and frequency of the first ray. Larson et al. teach (See Fig. 1 and 2) a similar device, wherein a single control unit (32) is operable to selectively control at least one of an intensity, duration, and frequency of a first ray (see Col. 4, lines 30-32) emitted

by a radiation source (20) and is operable to analyze the first ray for purposes of detecting the presence of particles on the windshield of the motor vehicle (see Col. 2, lines 30-32 and Col. 4, lines 30-41) when at least a portion of the first ray is received by the photodetector based, at least in part, on the one of the previously controlled intensity, duration, and frequency of the first ray (see Col. 4, lines 30-34). It would have been obvious to one of ordinary skill in the art at the time the invention was made to control the intensity, duration, or frequency of a ray from the radiation source and perform the analysis based, at least in part, on the intensity, duration, and frequency control as taught by Larson et al. in the device of Nakamura et al., to provide distinguishability among differing ambient light conditions, as taught by Larson et al. (See Col. 4, lines 30-34).

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. in view of Larson et al. as applied to Claim 1, further in view of Koyama et al. US Patent No. 6,285,037.

Regarding Claim 7, Nakamura et al. in view of Larson et al. teach the device in Claim 1, according to the appropriate paragraph above. Nakamura et al. do not teach the radiation source emitting optical rays with a wavelength of 350-800nm. Koyama et al. teach (see Fig. 1 and 2) a device (1) for detecting particles on a windshield (G) of a motor vehicle with a radiation source (4) which emits optical rays onto the windshield (see Fig. 2) and a photodetector (5) which receives a portion of the rays emitted onto the windshield, wherein the radiation source emits optical rays having a wavelength of 700nm to 780nm (see Col. 1, lines 63-64). It would have been obvious to one of ordinary skill in the art at the time the invention was made to emit optical

rays having wavelength of about 350nm to 800nm as taught by Koyama et al. in the device of Nakamura et al. in view of Larson et al., to improve detection for windshields with high infrared absorbances, as taught by Koyama et al. (see Col. 2, lines 33-40).

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. in view of Larson et al. as applied to Claim 1, further in view of Breed et al. US Patent No. 5,845,800.

Regarding Claim 11, Nakamura et al. in view of Larson et al. teach the device in Claim 1, according to the appropriate paragraph above. Nakamura et al. does not teach the device as an integral part of an interior light module in the vehicle. Breed et al. teach an optical sensor device for a vehicle with a field of view of the windshield (see Fig. 1D) of a vehicle wherein the sensor is mounted by an interior light module in the vehicle. It is well known in the art to integrate two adjacent components into a single larger housing, to provide simple attachment and greater protection. It would have been obvious to one of ordinary skill in the art at the time the invention was made to place the device of Breed et al. by an interior light module in the vehicle as taught by Breed et al. and integrate it with the interior light module in the device of Nakamura et al. in view of Larson et al., to provide the device with direct visual access to the windshield in the area of the field of vision and out of the field of vision of a driver of the vehicle and to improve the durability and assembly ease of the device.

6. Claims 12, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. in view of Larson et al. as applied to Claims 1 and 2, further in view of Stam et al. US Patent No. 5,923,027.

Regarding Claim 12, Nakamura et al. in view of Larson et al. teach the device in Claim 1, according to the appropriate paragraph above. Nakamura et al. do not teach the device as an integral part of a rearview mirror module in the vehicle. Stam et al. teach a device for detecting particles on a windshield of a motor vehicle with a radiation source (66) (see Fig. 2) which emits optical rays onto the windshield (see Fig. 3), a photodetector (32) which receives a portion of the rays emitted onto the windshield, and a control unit (see Col. 6, lines 6-15 and Col. 10, lines 32-34) which manages the radiation source and analyzes the rays received by the photodetector, wherein the radiation source is positioned outside the field of vision of a driver of the vehicle (see Fig. 3) and aligned in such a way that the light rays from the radiation source strike the windshield in the area of the field of vision, and that the photodetector is pointed at the area of the windshield which the optical rays from the radiation source strike (see Fig. 1 and 3), wherein the device as an integral part of a rearview mirror module in the vehicle (see Fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to integrate the device of Nakamura et al. in view of Larson et al. with a rearview mirror module in the vehicle as taught by Stam et al., to enable visual access to the windshield without interfering with the visual acuity of the driver.

Regarding Claim 14, Nakamura et al. in view of Larson et al. teach the device in Claim 1, according to the appropriate paragraph above. Nakamura et al. do not teach the control unit associated with a windshield cleaning system such that the windshield cleaning system is

activated when the control unit detects dirt on the windshield. Stam et al. teach a device for detecting particles on a windshield of a motor vehicle with a radiation source (66) (see Fig. 2) which emits optical rays onto the windshield (see Fig. 3), a photodetector (32) which receives a portion of the rays emitted onto the windshield, and a control unit (see Col. 6, lines 6-15 and Col. 10, lines 32-34) which manages the radiation source and analyzes the rays received by the photodetector, wherein the radiation source is positioned outside the field of vision of a driver of the vehicle (see Fig. 3) and aligned in such a way that the light rays from the radiation source strike the windshield in the area of the field of vision, and that the photodetector is pointed at the area of the windshield which the optical rays from the radiation source strike (see Fig. 1 and 3), wherein the control unit is operably associated (see Fig. 6) with a windshield cleaning system (40) of the vehicle such that the windshield cleaning system is activated when the control unit detects dirt on the windshield (see Col. 3, lines 53-55). It would have been obvious to one of ordinary skill in the art at the time the invention was made to integrate the device with a windshield cleaning system as taught by Stam et al. in the device of Nakamura et al. in view of Larson et al., to provide automatic windshield cleaning upon necessity without driver intervention.

Regarding Claim 16, Nakamura et al. in view of Larson et al. teach the device in Claim 2, according to the appropriate paragraph above. Nakamura et al. do not teach the light emitting diode as emitting optical rays having different wavelengths. Stam et al. teach a device for detecting particles on a windshield of a motor vehicle with a radiation source (66) (see Fig. 2) which emits optical rays onto the windshield (see Fig. 3), a photodetector (32) which receives a portion of the rays emitted onto the windshield, and a control unit (see Col. 6, lines 6-15 and Col.

10, lines 32-34) which manages the radiation source and analyzes the rays received by the photodetector, wherein the radiation source is positioned outside the field of vision of a driver of the vehicle (see Fig. 3) and aligned in such a way that the light rays from the radiation source strike the windshield in the area of the field of vision, and that the photodetector is pointed at the area of the windshield which the optical rays from the radiation source strike (see Fig. 1 and 3), wherein the radiation source is a visible LED (see Col. 10, lines 59-60), which inherently possesses a plurality of wavelengths within a visible spectrum range. It would have been obvious to one of ordinary skill in the art at the time the invention was made for the light-emitting diode to emit different wavelengths as taught by Stam et al. in the device of Nakamura et al. in view of Larson et al., to provide improved detection according to the specific absorption characteristics of the windshield as taught by Stam et al. (see Col. 10, lines 22-24).

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. in view of Larson et al. as applied to Claim 1, further in view of Hegyi US Patent No. 5,703,568.

Nakamura et al. in view of Larson et al. teach the device in Claim 1, according to the appropriate paragraph above. Nakamura et al. do not teach the device connected over a bi-directional data bus to a superordinate control unit in the vehicle. Hegyi teaches an image sensor for detecting particles on a windshield connected to a superordinate control unit (46) (see Fig. 3). Although Hegyi does not mention the connection of the device to the superordinate control unit over a bi-directional data bus, it is inherent that a data bus is used to convey data between the device and the superordinate control unit, and the superordinate control unit both sends and receives data bi-directionally to the device to obtain sensor data from the device and to control

the device. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the superordinate control unit over a bi-directional data bus of Hegyi with the device of Nakamura et al. in view of Larson et al., to provide feedback for other vehicle functions and enable the activation and deactivation of the device.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. in view of Larson et al. as applied to Claim 1, further in view of Schofield et al. WO 99/23828.

Nakamura et al. in view of Larson et al. teach the device as taught in Claim 1, according to the appropriate paragraph above. Nakamura et al. do not teach the photodetector as a CCD array. Schofield et al. teach (see Fig. 2b and 6) a device for detecting particles on a windshield (19) comprising a light source (38) and a photodetector (36) receiving a portion of the rays emitted onto the windshield, wherein the photodetector is a CCD array (see Page 5, lines 29-32). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a CCD image converter as the photodetector as taught by Schofield in the device of Nakamura et al. in view of Larson et al., to provide imaging means for more accurate detection of the existence of particles on the windshield.

9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. in view of Larson et al. as applied to Claim 2, further in view of Teder.

Nakamura et al. in view of Larson et al. teach the device as taught in Claim 2, according to the appropriate paragraph above. Regarding Claim 17, Nakamura et al. do not teach the light emitting diode operable to emit optical rays having different intensities. Teder teaches (see Figs.

1 and 2) a similar device for detecting particles on a windshield of a vehicle with a radiation source (40/52) which emits optical rays onto the windshield (20) (see Col. 4, lines 9-10), wherein the radiation source is operable to emit optical rays having different intensities (see Col. 6, lines 10-20). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the light emitting diode operable to emit optical rays having different intensities, as taught by Teder, in the device of Nakamura et al. in view of Larson et al., to improve particle detection for windshields having different transmittances and compensate for changes in electronic components, as taught by Teder (see Col. 3, lines 4-7).

10. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. in view of Larson et al. as applied to Claim 2, further in view of Breed et al.

Nakamura et al. in view of Larson et al. teach the device as taught in Claim 2, according to the appropriate paragraph above. Nakamura et al. do not teach the light emitting diode positioned such that the optical rays strike the windshield at a similar angle with respect to a driver's line of sight. Breed et al. teach (see Fig. 1D) a device where a light emitting diode (113) (see Col. 5, lines 51-52 and Col. 13, lines 3-4) is positioned such that the optical rays strike the windshield at a similar angle with respect to a driver's line of sight (see Fig. 1D), mounted by the interior light module of the vehicle (see Col. 13, lines 10-12). It would have been obvious to one of ordinary skill in the art at the time the invention was made to position the light emitting diode so the optical rays strike the windshield at a similar angle with respect to a driver's line of sight as taught by Breed et al. in the device of Nakamura et al. in view of Larson et al., to prevent the

light from interfering with the driver's view on the windshield and hampering his/her driving abilities.

Response to Arguments

11. Applicant's arguments with respect to claims 1-9 and 11-18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (571)272-2449. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571)272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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PATENT EXAMINER